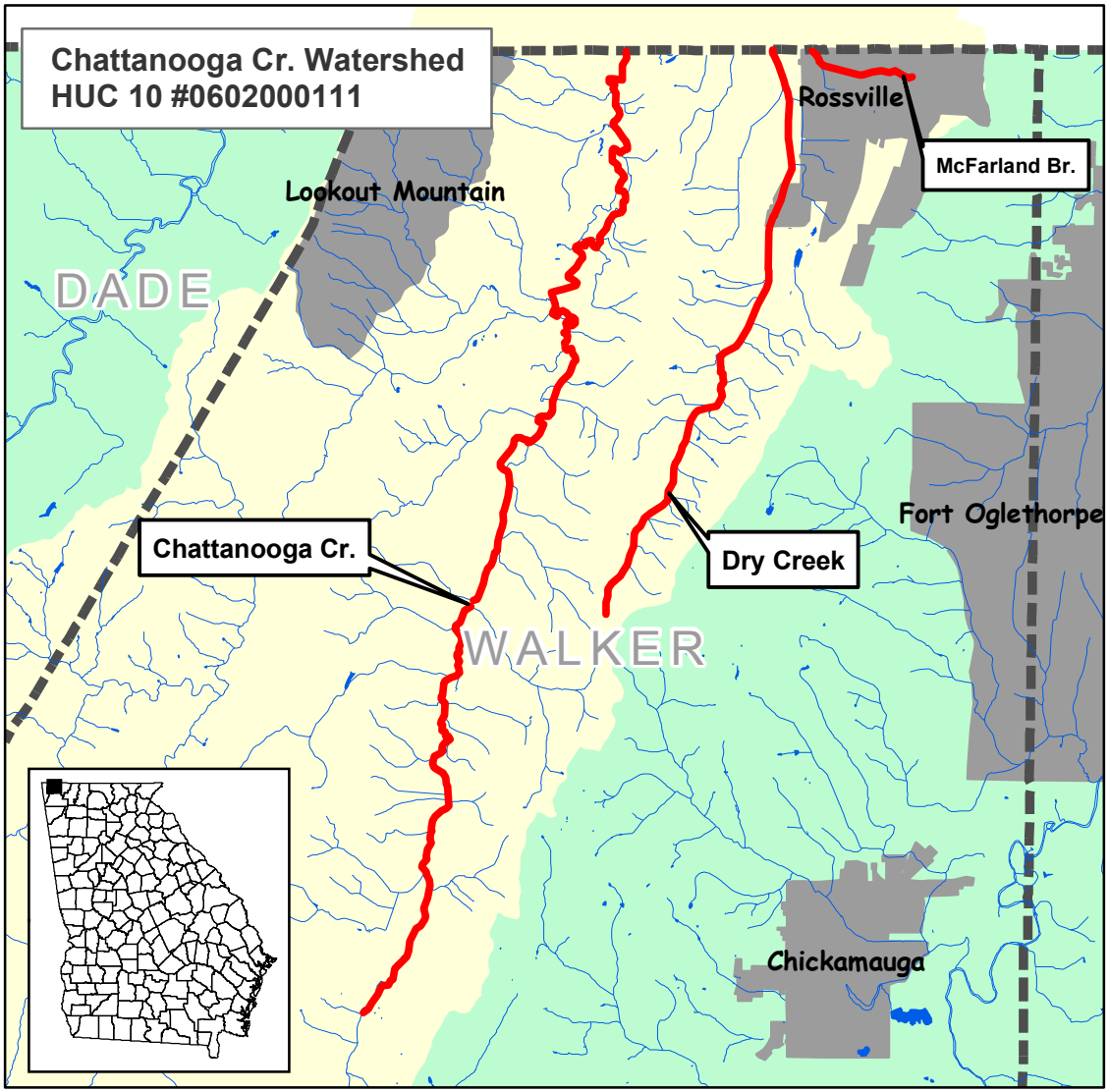
STATE OF GEORGIA
TIER 2 TMDL IMPLEMENTATION PLAN REVISION 1
Chattanooga Creek Watershed
Tennessee River Basin
April 28, 2006

Walker County, City of Lookout Mountain, City of Rossville



I. INTRODUCTION

Total Maximum Daily Load (TMDL) Implementation Plans are platforms for evaluating and tracking water quality protection and restoration. These plans have been designed to accommodate continual updates and revisions as new conditions and information warrant. In addition, field verification of watershed characteristics and listing data has been built into the preparation of the plans. The overall goal of the plans is to define a set of actions that will help achieve water quality standards in the state of Georgia.

This implementation plan addresses the general characteristics of the watershed, the sources of pollution, stakeholders and public involvement, and education/outreach activities. In addition, the plan describes regulatory and voluntary practices/control actions (*management measures*) to reduce pollutants, milestone schedules to show the development of the management measures (*measurable milestones*), and a monitoring plan to determine the efficiency of the management measures.

Table 1. IMPAIRMENTS

IMPAIRED STREAM SEGMENT	IMPAIRED SEGMENT LOCATION	IMPAIRMENT	TMDL ID
Chattanooga Creek	Flintstone to State Line	Fecal Coliform Bacteria	TEN0000010
Chattanooga Creek	High Point to Flintstone	Fecal Coliform Bacteria	TEN0000033
Dry Creek	Headwaters to Chattanooga Cr. at State Line	Fecal Coliform Bacteria	TEN0000014
McFarland Branch	Rossville to State Line	Fecal Coliform Bacteria	TEN0000012
Rock Creek *	Headwaters to Chattanooga Creek	Biota (Sediment)	TEN0000013
Chattanooga Creek *	High Point to Flintstone	Biota (Sediment)	TEN0000011
McFarland Branch *	Rossville to State Line	Low Dissolved Oxygen	TEN0000035

* Plan will be written by GA EPD

II. GENERAL INFORMATION ABOUT THE WATERSHED

Write a narrative describing the watershed, HUC 10 #0602000111. Include an updated overview of watershed characteristics. Identify new conditions and verify or correct information in the TMDL document using the most current data. Include the size and location of the watershed, political jurisdictions, and physical features which could influence water quality. Describe the source and date of the latest land cover/use for the watershed. Describe and quantify major land uses and activities which could influence water quality. See the instructions for more information on what to include.

The western portion of the watershed drains the eastern slopes of Lookout Mountain (elevation around 600 ft.) down to the Chattanooga Valley (elevation of 205 ft.). Chattanooga Creek meanders north through the valley. This southwestern portion of the watershed is home to the Lula Lake Land Trust which protects over 4,000 acres in the Rock Creek Watershed. Hawkins Ridge, with an elevation of 321 ft at its' highest point, drains west to the valley. The western slope of Hawkins Ridge slopes more gently to the east , draining to Dry Creek. Dry Creek headwaters at an elevation of 300 ft. atop Missionary Ridge flowing northeast through the floodplain between the two ridges in City of Rossville to Chattanooga Creek at the Tennessee state line. The McFarland Branch is a small interstate stream fed by underground springs draining part of the City of Rossville and tributary to Chattanooga Creek. It is a small one mile segment that is surrounded by the urbanized area of the City of Rossville.

This portion of the Tennessee River Basin in Georgia lies in the physiographic region known as the "Ridge and Valley" province. Characterized by underlying rocks of shale. slate, dolomite and limestone, the latter two being porous rock, streams that flow over beds of exposed limestone tend to have high conductivity values"-('86 EPD Study) . Bedrock was visible as the streambed material at many locations . Walker County and adjoining Dade Counties comprise the state's predominant region for karst topography, limestone-containing soil with sinkholes, springs, sinking streams and caves. "The limestone does not offer much filtration, so ground water can easily be polluted and contaminate the drinking water supply" Local govt's are advised to consult geologists and hydrologists in constructing ordinances and developing zoning laws for protection of these resources (Carol Zokaites – coordinator of Project Underground – Walker Co. Messenger 1/31/01)

Land use -
Chattanooga Creek - (High Pt. to Flintstone) - forest 81.3%, pasture/hay 13.3%, row crops 2%, high intensity residential 1.9%, other grasses 1%, high intensity commercial 0.3%, open water 0.2%, transitional 0.1%.
Chattanooga Creek - (Flintstone to Stateline) – forest 87.8%, pasture/hay 7.4%, high intensity residential 1.8%, row crops 2%, other grasses 1%, high intensity residential 1.8%, open water 0.1%.
Dry Creek – forest 59.1%, high intensity residential 16.2%, pasture/hay 12.2%, other grasses 4.9%, row crops 3.4%, quarries, strip mines, and gravel pits 2.5%, high intensity commercial 1.3%, open water 0.3%. Source: "Total Maximum Daily Load Evaluation for Nineteen Stream Segments in the Tennessee River Basin for Fecal Coliform" Submitted by The Georgia Department of Natural Resources. January 2004.

Land use data shows Dry Creek having the largest % of land use devoted to mines, as well as the lowest number of forested acres . The area is dominated by older trailers and mobile home communities in close proximity to the stream. A newer mobile home community advertises city water and sewer. Possibly older trailers are on septic systems. More trash and litter in the stream and along roadways was seen here than in watersheds of other creeks . Rossville Quarry is in the Dry Creek watershed.
Stakeholders commented that most acreage that had been used for row cropping throughout this HUC has since been replaced with new residential. Very little, if any row cropping is done in the watershed now.

McFarland Branch – forest 32%, low-intensity residential 28.4%, high intensity commercial 19.6%, high intensity residential 9.4%, other grasses 4.8%, row crops 2.1%, pasture/hay 1.8%, This watershed is more highly urbanized with the highest percentage of low density residential and high intensity commercial land use.

Point Sources:

Landfills: Marble Top Rd. Permit # 146-003D ceased accepting waste 6/30/98 and is being monitored (Areas 1-5).

Marble Top Rd. site 2 (MSWL) Permit # 146-051D has been issued and is operating.

Mathis Bros**.** S. Marble Top Rd. Permit # 146-005D– approx. 3.5 miles southwest of above mentioned Marble Top landfill, this landfill has been reclaimed and is being monitored. The area has been covered with fill dirt and vegetated.

NPDES dischargers: none

Mines: Rossville Quarry Permit #195-03 – Oldcastle Materials Southeast, Inc. This limestone quarry is closed.

Double Diamond Construction Co, Inc. Permit #195-94 – Iris Arnold and Dewberry Mines for barite in Rossville is inactive.

Wes Blakemore Trucking and Excavation Permit #1437-03 - This is a reportedly small chert operation.

The Sequatchie Concrete Service, Inc. Burnt Mill Road Pit Permit #1536-05 at the northernmost reach of watershed near the stateline has been shut down. The foundry dumpsite remains as a fill pit.

CAFO's : none

Chattanooga Creek

COMPLETE THE FOLLOWING TABLES FOR AND NARRATIVES ABOUT EACH IMPAIRED STREAM IN THE WATERSHED.

STREAM SEGMENT NAME	LOCATION	MILES/AREA	DESIGNATED USE	PS/NS
Chattanooga Creek	Flintstone to State Line (Walker County)	4	Fishing	NS

III. SOURCES AND CAUSES OF STREAM SEGMENT IMPAIRMENT LISTED IN TMDLs

After reviewing the TMDLs written for this stream, complete the following tables with **the information found in the TMDLs**. List each parameter for which the stream segment is impaired and the water quality standard violated. See the instructions for the water quality standards. Describe the sources and causes of each violation identified in the TMDLs.

Table 2. SOURCES OF IMPAIRMENT AS INDICATED IN TMDLs

PARAMETER 1	WQ STANDARD	SOURCES OF IMPAIRMENT	NEEDED REDUCTION FROM TMDL
Fecal Coliform Bacteria	1000 per 100ml (geometric mean Nov-Apr) 200 per 100ml (geo. mean May-Oct)	Urban Development • Leaking septic systems • Land application systems • Landfills	61 percent from all sources

Chattanooga Creek

COMPLETE THE FOLLOWING TABLES FOR AND NARRATIVES ABOUT EACH IMPAIRED STREAM IN THE WATERSHED.

STREAM SEGMENT NAME	LOCATION	MILES/AREA	DESIGNATED USE	PS/NS
Chattanooga Creek	High Point to Flintstone (Walker County)	7	Fishing	NS

III. SOURCES AND CAUSES OF STREAM SEGMENT IMPAIRMENT LISTED IN TMDLs

After reviewing the TMDLs written for this stream, complete the following tables with **the information found in the TMDLs**. List each parameter for which the stream segment is impaired and the water quality standard violated. See the instructions for the water quality standards. Describe the sources and causes of each violation identified in the TMDLs.

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PARAMETER 1	WQ STANDARD	SOURCES OF IMPAIRMENT	NEEDED REDUCTION FROM TMDL
Fecal Coliform Bacteria	1000 per 100ml (geometric mean Nov-April) 200 per 100ml (geo. Mean May-Oct)	Wildlife Agricultural/Livestock • Animal grazing • Animal access to streams • Application of manure to pastureland and cropland Urban Development • Leaking septic systems	74 percent from all sources

Dry Creek

COMPLETE THE FOLLOWING TABLES FOR AND NARRATIVES ABOUT EACH IMPAIRED STREAM IN THE WATERSHED.

STREAM SEGMENT NAME	LOCATION	MILES/AREA	DESIGNATED USE	PS/NS
Dry Creek	Headwaters to Chattanooga Creek at State Line (Walker County)	5	Fishing	NS

III. SOURCES AND CAUSES OF STREAM SEGMENT IMPAIRMENT LISTED IN TMDLs

After reviewing the TMDLs written for this stream, complete the following tables with **the information found in the TMDLs**. List each parameter for which the stream segment is impaired and the water quality standard violated. See the instructions for the water quality standards. Describe the sources and causes of each violation identified in the TMDLs.

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PARAMETER 1	WQ STANDARD	SOURCES OF IMPAIRMENT	NEEDED REDUCTION FROM TMDL
Fecal Coliform Bacteria	1000 per 100ml (geometric mean Nov-April) 200 per 100ml (geo. Mean May-Oct)	Urban Development • Leaking septic systems	89 percent

McFarland Branch

COMPLETE THE FOLLOWING TABLES FOR AND NARRATIVES ABOUT EACH IMPAIRED STREAM IN THE WATERSHED.

STREAM SEGMENT NAME	LOCATION	MILES/AREA	DESIGNATED USE	PS/NS
McFarland Branch	Rossville to State line	3	Fishing	NS

III. SOURCES AND CAUSES OF STREAM SEGMENT IMPAIRMENT LISTED IN TMDLs

After reviewing the TMDLs written for this stream, complete the following tables with **the information found in the TMDLs**. List each parameter for which the stream segment is impaired and the water quality standard violated. See the instructions for the water quality standards. Describe the sources and causes of each violation identified in the TMDLs.

Table 2. SOURCES OF IMPAIRMENT AS INDICATED IN TMDLs

PARAMETER 1	WQ STANDARD	SOURCES OF IMPAIRMENT	NEEDED REDUCTION FROM TMDL
Fecal Coliform Bacteria	1000 per 100ml (geometric mean Nov-April) 200 per 100ml (geo. Mean May-Oct)	Urban Development • Leaking septic systems • Leaking sewer lines	99 from all sources

IV. IDENTIFICATION AND RANKING OF POTENTIAL SOURCES OR CAUSES OF IMPAIRMENT

INVESTIGATE AND EVALUATE the sources of impairment for each parameter listed in Table 2. Write a narrative describing efforts made or procedures used to verify the significance and extent of the sources or causes of each impairment listed in the TMDLs. Include:

- Involvement of stakeholder group
- Review of land cover data
- Field surveys
- Evaluation of sources

The land cover data indicates that the Chattanooga Creek watersheds are two of the most highly forested, while Dry Creek and McFarland Branch have the highest percentage of all streams surveyed devoted to low residential (16.2%) and high residential (24%) use, and high commercial use (19.6%) With such a high degree of urbanization in the watershed, urban runoff is probably a significant contributor to these two segments.

A private interview with one stakeholder revealed the following opinions with regard to sources of fecal coliform bacteria in the watershed:

- **Chattanooga Creek (High Pt. to Flintstone).** Due to geographic conditions there is very little floodplain to filter any pollutant liable to run down the steep slopes along either bank of the creek. This was identified as a big agricultural area with lots of cattle and horses. In addition, there is no sewer to service residents along the creek, so septic is the primary source of sewage disposal in this lower section of the watershed. The flow is extremely low in this section, being fed mostly by intermittent streams. Agriculture is probably the most significant source of bacteria to this segment.,.
- **Chattanooga Creek (Flintstone to stateline)** Flowing north downstream of Flintstone no major new flow comes in and the stream becomes even more sluggish. Burnt Mill Rd. does not have sewer, so any of the sparsely located older housing along the road would have to be on septic. Again, minimum setback requirements enacted by EPD is a suggested BMP.
- **Dry Creek:** The lower reaches of the watershed south of Hwy 2 is home to the Dry Valley Community. There's not a lot of agriculture, perhaps just light pasture and sparse residential development. The area is known to be poorly suited for septic. Improper soils and other factors contribute to septic system failures there on a regular basis. In addition, the steep slopes to the east along Missionary Ridge drain several small intermittent streams with little floodplain to filter any pollutants. Dry Valley is a priority of the County for sewer.
  The upper reaches of the watershed north of Hwy 2 contain the highly urbanized, industrialized area of the City of Rossville. Sampling at Hwy 2 and a quarter mile above it might help to target best management practices.
- **McFarland Branch:** The City of Rossville's sewer system is reportedly antiquated and prone to leaks at many locations. Additionally, the segment is just downstream of an upper pond that is home to ducks and geese, also possible sources of fecal coliform.

To the extent possible, identify sources and quantify the extent of pollution in the stream segment for each of the parameters listed in Table 2 and evaluate the likely impact on the parameter load to the stream. This should follow research performed and described in preceding narrative and should correct or add information to the TMDLs. **The *SOURCES SHOULD BE RANKED*** from those having the most impact to those having the least impact. The estimated extent of contribution can be expressed as the area of the watershed effected, the stream miles effected, or the number of activities contributing to the problem. The magnitude of contribution should be estimated to be large, moderate, small, or negligible.

Table 3. CONCLUSIONS MADE OF POTENTIAL SOURCES OF STREAM SEGMENT IMPAIRMENT

PARAMETER 1	POTENTIAL SOURCES	ESTIMATED EXTENT OF CONTRIBUTION	ESTIMATED MAGNITUDE OF CONTRIBUTION	COMMENTS
Fecal Coliform	Agricultural/Livestock • Animal grazing • Animal access to streams • Application of manure to pastureland.	Southernmost reaches of watershed are agricultural	Large	Increasingly more poultry producers in watershed in addition to existing horse and cattle farms.
	Leaking septic systems	Some areas without sewer, Dry Creek watershed known for failing septic systems, Burnt Mill Rd. along Chattanooga Creek has no sewer. Soils in watershed generally unsuitable for septic although many exist prior to permitting.	Large	
	Wildlife	Small watershed of McFarland Branch,	Moderate	McFarland Branch just downstream from duck pond

Chattanooga (High Point to Flintstone)

PARAMETER 1	POTENTIAL SOURCES	ESTIMATED EXTENT OF CONTRIBUTION	ESTIMATED MAGNITUDE OF CONTRIBUTION	COMMENTS
Fecal coliform				

Chattanooga (Flintstone to stateline)

PARAMETER 1	POTENTIAL SOURCES	ESTIMATED EXTENT OF CONTRIBUTION	ESTIMATED MAGNITUDE OF CONTRIBUTION	COMMENTS
Fecal coliform				

Dry Creek

PARAMETER 1	POTENTIAL SOURCES	ESTIMATED EXTENT OF CONTRIBUTION	ESTIMATED MAGNITUDE OF CONTRIBUTION	COMMENTS
Fecal coliform				

McFarland Branch

PARAMETER 1	POTENTIAL SOURCES	ESTIMATED EXTENT OF CONTRIBUTION	ESTIMATED MAGNITUDE OF CONTRIBUTION	COMMENTS
Fecal coliform				

FIELD SURVEY
7/1/05
Jill Joss
Wx : 92 degrees and sunny / rain

CHATTANOOGA CREEK – High Point to Flintstone

Stream was accessible by road practically all along this stretch, indicating urban influences, many older, poorly maintained residences exist very close to it along these roads.

I. Tributary to Creek approximately .25 miles S. of High Point Community
Landowner gave permission to come onto his land and photograph the stream. According to him, this small tributary flows all year 'round. Overflow from a small lake just above his property is the source.
#16.) Upstream
#17.) Downstream
#18.) Very wooded area, cattails reveal wetlands

II. E. on Garretts Rd. across stream N. on small unimproved rd. running parallel with stream. Stream is approx 100 ft. away. Much of land is used as horse pasture. Rock outcroppings exist along the West side of Hwy 193 and the stream. Road dead ends directly beside stream, older residences are extremely close to the creek.
#19.) Upstream – water somewhat cloudy, bedrock stream bed is visible in photo. Dense buffer all around.
#20.) Downstream – more bedrock visible as stream bed.

III. Rd. Bridge – Old Chattanooga Rd. Land use predominantly pasture.
#21.) Upstream – good flow, still appearing milky
#22.) Large black bull in stream beyond the tree cover, not visible in photograph, however.
#23.) Downstream – same conditions as upstream

IV. 1 mile further NE on Hwy 193 –
#24.) farm indicating more cattle in area.
#25.) This truck seen in area appearing to deliver gravel and field line for a septic system,

V. Rd. bridge between Cenchat and Hwy 193
#26.) Looking upstream – note debris on bridge
#27.) Same location, had been Egret in stream
#28.) Downstream, good flow here, heavily vegetated banks

V. Stream @ Flintstone

FIELD SURVEY
7/2/05
Jill Joss
Wx: 94 degrees and overcast/rain

CHATTANOOGA CREEK – Flintstone to stateline

This stretch of the stream flows N through the center of the Chattanooga Valley. The floodplain is much wider here, allowing limited access to the stream on either side for most of the stretch.

I. Hwy 193N Rd. bridge just S. of Burnt Mill Rd.
Downstream, channel is much wider, water very clear, heavily forested banks.
Upstream, similar conditions. Streambed is bedrock, possibly limestone

II. Hwy 341 Rd. bridge 1 mile S of Fantasy Hills Subdivision
Upstream – water is much more murky, cloudy.
Downstream – similar conditions, riffles present,flowing well.

III. Approx. 1 mile N up Burnt Mill Rd. – rd. extends directly beside stream.
Upstream, water still fairly clear, well-vegetated buffers. Flow is slower, however, perhaps due to debris after heavy rainfall of past several days .
Downstream view. Flowing better than upstream. Otherwise similar conditions as upstream.

IV. Hwy 193N – just S. of intersection of TN. AL. & GA. rail line and highway. Down small dead end road toward stream. No access to stream at this location, not in sight. Pipeline extends across stream near this location, running down center of Chattanooga Valley.

V. Approx. 4 miles N. up Burnt Mill Rd. – stream flowing beside road. Extremely steep slopes to east @ Hawkins Ridge.

FIELD SURVEY
7/04/05
Jill Joss
Wx : Sunny, hazy– 85 degrees

DRY CREEK – Headwaters to Chattanooga Creek @ stateline

I.Maple St. Rd. bridge @ west end of Rossville. Urban influences of abandoned industry

II. N. on Wilson Rd. Stormwater from previous days' rain backed up the stream. Land use in this area is mostly horse and cattle pasture.
#67.) Upstream – buffered by vegetation, very low flow
#68.) Downstream

#69.) Horse pasture at dead end of rd.

III. Heading E. on Escalon St. from Wilson Rd. – older, poorly maintained trailers @ Mobile Home Park and pasture. Private road extends to within 100 ft. of stream.

IV. James St. Rd. bridge – Mobile home community advertises available sewer
#70.) Upstream –low flow, heavy vegetation along banks, milky water. Older housing is as near as 25 ft. from the stream.
#71.) Note pasture fence, bull can be seen just beyond fence, bathing in stream
#72. & #73.) Horse pasture.
#74.) Sewer pipe within 100 ft. of stream.
#75.) Milky water.
#76.) Trash, debris in stream

V. Salem Rd. bridge at extreme S. end of Rossville
#77.) Upstream – water lower flow but much clearer than last stop. Note: pipe running beside bridge.
#78.) Downstream – more debris in stream, urban influences

VI. #79.) Rossville Quarry

VII. #80.) Very large farm located approx. 500 ft. from stream.

VIII. Meadowview Rd. – approx 1 mile from Dry Valley Church
#81.) Upstream - water fairly clear, bedrock for streambed, low flow to stream, well-buffered.

Field Survey
July 8, 2005
David Howerin, Nancy Gribble and Jill Joss
Wx: Sunny, slight breeze, and ~ 85-87 degrees F.

McFARLAND BRANCH – Rossville to stateline

I. Flegal Ave, City of Rossville, Georgia
Water appearance was clear, lots of rocks, good flow with riffles. Banks were stable, good vegetative buffer to North side; Southside was paved school parking lot. Area drained Rossville Middle School buildings and parking lot. Across Flegal Ave were industrial areas.
Wildlife Observed: lots of minnows in stream pools.
Photographs taken: #67 and 68 upstream, #69 and 70 downstream

II. Behind Rossville Middle School

Observed tributary to McFarland Branch, very good flow, puzzling on source of the water, no water seen near school building. Question: Where did water in tributary flow from building or under building?
Photographs taken: #71

III. Williams Street
McFarland Branch flows behind industrial use buildings, several small bridges or footpaths over the stream. Area would drain impervious parking lots, walkways, roof tops of several buildings in the area. Water also enters the stream from the roadside ditch along Williams Street.
Water appearance was clear, good flow upstream and downstream, rocks with riffles, and good vegetative cover to banks. It appears that a sewer runs along the east side of Williams Street (manhole seen and photographed). Diesel pumps seen in parking lot at west side of Williams Street. Appears to be a fuel pump for vehicles, probably one or more underground storage tanks near the stream.
Wildlife Observed: minnows seen in pools in stream
Photographs taken: #72 and 73, 74 upstream

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V. STAKEHOLDERS

PUBLIC INVOLVEMENT AND THE ACTIVE PARTICIPATION OF STAKEHOLDERS is essential to the process of preparing TMDL implementation plans and improving water quality. Stakeholders can provide valuable information and data regarding their community, impaired water bodies, potential causes of impairments, and management practices and activities which may be employed to reduce the impacts of the causes of impairment.
Describe outreach activities to advise and engage stakeholders in the TMDL implementation plan preparation process. Describe the stakeholder group employed or formed to address the impaired segments in the watershed. Summarize the results of the number of attendees and meetings and describe major findings, recommendations, and approvals.

The Coosa Valley Regional Development conducted several TMDL informational and stakeholder public meetings:
The mailing list for the first meeting included all officials from the cities and counties in the watersheds for the impaired streams. A notice about the 303(d) listed streams, a general handout on the TMDL process, and an RSVP form were mailed to each of the 136 individuals on the list (see attachment)
Outreach for the second meeting included over 200 poultry farmers in the watersheds added to the mailing list. A similar letter was sent to all of those notified of the first meeting as well as the added farmers, watershed groups, educators, and other stakeholders identified at the first meeting or by additional outreach.
The mailing for the third meeting in December was supplemented by posting of flyers in the watershed community. 10-15 flyers were posted/handed out for each 10-digit HUC in an attempt to attract and educate more of the public-at-large (see attachment). The meeting was purposely scheduled during evening hours to allow for broader participation. The Stakeholder Advisory Groups were formed, including individuals who had attended one or more of the past stakeholder meetings. Where we discovered key stakeholders that had not yet participated, they were included even at the late date.

<u>May 18, 2005 TMDL Stakeholder Meeting held at the Walker County Civic Center for the streams in the Tennessee Basin</u> (17 attendees)
A powerpoint presentation introduced the TMDL process and contractor's responsibilities under the contract as well as milestones and timelines. The meeting was opened for general discussion afterward. Government officials were told that part of the process would be to review what management measures (i.e. ordinances, previous water planning efforts, etc.) are currently in place to address fecal coliform impairments in the streams. Stakeholders questioned how the requirements for stormwater planning coincide with the TMDL requirements. Watershed Protection Plans can go a long way toward fulfilling these requirements. Some questioned the State Legislature's passing of legislation that reduces the minimum requirements for stream buffers and measures threatening legal problems around the issue of easements as "takings issues'. The

agricultural community discussed some of the work that they do with buffers and fencing. They shared that they have been involved in this kind of process before and hopes that the end result is not to decrease the agricultural development or input. Providing a buffer zone for row crop farmers may decrease their crop area and yield. Some wondered about methods to determine whether the source of bacteria is human or animal in origin. Geese and ducks are in abundance in some areas and contribute to the load. It would be easier to target best management practices if the source could be somehow narrowed down.
It was suggested that most of the cause of non-point pollution to the waters is urban runoff. Others recommended that counties that border one another gather information and work toward addressing these issues together. It was explained that this process is intended to foster partnerships within the watershed to work towards solutions.

August 31, 2005 TMDL Stakeholder Meeting held at Walker County Civic Center for the streams in the Tennessee Basin (24 attendees)
The meeting opened with the showing of two videos, "TMDLs in Georgia" and "When Red Clay Meets Blue Water". A powerpoint presentation followed and findings and photos from the field survey were shared. Discussion followed as a brainstorming session on sources and best management practices. The NRCS shared their efforts in the watershed to help farmers with funding for buffers, greenspace development, grasslands, and fencing livestock out of waterways. Currently the bulk of the funding is targeting poultry growers. The Georgia Soil and Water Conservation Commission spoke to the new requirements for those involved in land disturbing activities to become certified in Soil and Erosion control. This will need to be accomplished by the end of 2006.
Discussion moved to the challenges faced by leaking and failing septic systems as sources of bacteria. The local water utility tests well water samples for the public and they see well water failures due to neighboring septic systems. The county health departments have records on recent permitting for septic tank installation but no records indicate those in need of maintenance or pumping out. Homeowners are usually not aware of the problem until it fails. TVA has done pollution inventories by arial infrared photography to help identify failing systems. Local officials would like to get more customers on sewer systems, but cannot get the permitted output needed to accommodate the increased flow. One stakeholder suggested a state law be passed mandating sewer line connections if a home is located so many feet from sewer service. A
TVA official discussed the concept of on-site wastewater treatment systems as alternatives and stated that The State of Tennessee is very receptive to these systems if they are managed properly.
The meeting was adjourned and participants were told they would be notified about the next meeting.

October 18, 2005 Fall Workshop-Northwest Georgia Regional Water Resources Partnership held in Dalton, Georgia. Workshop title: CLEAN WATER the TMDL Link, A Toolbox for Improving Water Quality. Coosa Valley Regional Development Center & North Georgia Regional Development Center had two separate breakout sessions on the TMDL Implementation Plans for Stakeholder Interest (73 attendees)

December 6, 2005 Stakeholder Meeting held at the Walker County Civic Center (14 attendees).

Stakeholders were also contacted individually to introduce the TMDL implementation process and to invite input into the implementation plans as members of the advisory committee.

The Walker County Stakeholder Advisory Group (SAG) met on February 1 at the Walker County Civic Center (6 attendees) to review the plans prior to turning in the rough drafts.

The Catoosa County SAG combined with the Walker County SAG to form the Stakeholder Advisory Group for each of the 10 listed streams in the Tennessee Basin in Georgia. The group met at the Walker County Civic Center February 23 from 6:00 pm to 8:00 pm. Present were: Brandon whitley with Walker County Water and Sewer, Kelia Kimbell, Walker County Planning and Development, Allen Ridley, Catoosa County Building and Inspection, Suzanne Cobos, Catoosa County Special Projects Coordinator, Linda Harris, TVA, Mrs. Dee Collins Parker, Chattanooga Valley Residents' Association, Jill Joss, and Julie Meadows, Coosa Valley RDC.

Representatives from each county discussed the new sewer and where it is being located in the watershed. In each case if an older system can be used it will be pumped out, but if they are failing or crumbling they will be taken out. Environmental education on non-point sources of pollution was discussed among stakeholders with sharing of initiatives and a willingness to work together to discuss new opportunities. The group discussed the different land development regulations, i.e. requirements to hook up to sewer when available, requirements for building on floodplains, wetland building requirements, etc. and challenges of implementing them and lessons learned. The new Erosion and Sedimentation Certification required of those involved in land-disturbing activities was discussed and stakeholders felt it will help. Funding availability through the 319 grant program was discussed. Group was informed that the contractor will meet with EPD to discuss the types of activities expected to receive funding this cycle.

The meeting concluded with the announcement that the contractor would like to hold monthly meetings between March and June to continue the process. All agreed and the meeting was adjourned.

List the watershed or advisory committee members of the stakeholder group for this segment in the following table.

Table 4. COMMITTEE MEMBERS

NAME/ORG	ADDRESS	CITY	STATE	ZIP	PHONE	E-MAIL
Kelia Kimbell Walker County Planning Director	101 Napier St. Ste. B	Lafayette	GA	30729	(706) 638-4048	klkimbell@aol.com
Kathy Ward Walker County Planning	101 Napier St. Ste. B	Lafayette	GA	30729	(706) 638-4048	
Norman Edwards Walker County Extension Agent	P.O. Box 827	Lafayette	GA	30728	(706) 638-2548	nedwards@uga.edu
Cindy Askew NRCS	208 N. Duke St.	Lafayette	GA	30728	(706) 638-2207 ext.3	cindyaskew@ga.usda
Brandon Whitley Walker Co. Water &	P.O. Box 248	Flintstone	GA	30725	(423) 421-2942	wcwsaww@nexband.com

Sewer Authority –Plant Supervisor						
Don Oliver Walker County Attorney	P.O. Box 445	Lafayette	GA	30728	(706) 638-1437	
Doug Cabe Limestone Valley RC&D	125 RedBud Rd. Suite 7	Calhoun	GA	30701		dec@lvrcd.org
David Ashburn Mgr. Walker County Water & Sewer	P.O. Box 445	Lafayette	GA	30728	(706) 638-1437	
Mrs Dee Collins Parker Chattanooga Valley Residents Association	64 Iriswood Rd.	Flintstone	GA	30725	(706) 820-9622	deecolpar@aol.com
Keith Gilmer Ga. Soil & Water Conservation Commission	700 E. 2nd Ave. Suite J	Rome	GA	30161		
Jimmy Pinion – Walker Co. Environmental Health Dept.					(706) 639-2574	
Henry Blakemore?	2380 Burnt Mill Rd.	Flintstone	GA	30725		

In Appendix A, list the names, addresses, telephone numbers, and e-mail addresses for local governments, agricultural or commercial forestry organizations, significant landholders, businesses and industries, and local organizations including environmental groups and individuals with a major interest in this watershed.

VI. MANAGEMENT MEASURES AND ACTIVITIES

Describe any management measures or activities that have been put into place or will be put into place including regulatory or voluntary actions or other controls by governments or individuals that specifically apply to the pollutant that will help achieve water quality standards. Include who will be responsible for the measure, how it will be funded, the status, the date it will be or was initiated, and a short description of how effective the measure is or will be.

Table 5. MANAGEMENT MEASURES AND ACTIVITIES

GENERAL MEASURES APPLICABLE TO ALL PARAMETERS

MEASURE	RESPONSIBILITY	DESCRIPTION	SOURCE OF FUNDING	STATUS	ENACTED/ IMPLEMENTED	EFFECTIVENESS (Very, Moderate, Weak)
Federal Clean Water Act, Section 305(b) and 303 (d)	USEPA, Georgia DNR EPD, Walker County	The congressional objective of the Clean Water Act "is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Section 305 (the *National Water Quality Inventory*) requires states to report progress in restoring impaired waters to EPA on a Biennial basis. Section 303(d) requires states to identify 'impaired' waters, submit a list to EPA every two years, and develop TMDLs for these waters	Federal, Georgia	Enforced		
Georgia Water Quality Control Act (OCGA 12-5-20)	Georgia Rules and Regulations for Water Quality Control, Chapter 391-3-6	Law prohibiting discharge of excessive pollutants (sediments, nutrients, pesticides, animal wastes, etc.) into waters of the State in amounts harmful to public health, safety, or welfare, or to animals, birds, or aquatic life or the physical destruction of stream habitats. Law	Federal, Georgia, Walker County	Enforced	11/1964	

		authorizing Georgia EPD to control water pollution, eliminate phosphate detergents, and regulate sludge disposal; to require permits for agricultural ground and surface water withdrawals; to prohibit situation of state waters by land disturbing activities and require undisturbed buffers along state waters; to require land-use plans that include controls to protect drinking water supply sources and wetlands; to require river basin management plans on a rotation schedule for all major river basins.				
Georgia Erosion and Sedimentation Control Act, Construction Permit	Walker County, Georgia DNR/ EPD, Georgia Soil and Water Conservation Commission	County certified as Local Issuing Authority for land-disturbing activities. Requires Erosion and Sedimentation Control Plan incorporating best management practices plus "Qualified Personnel" Training and Certification Program adopted from Georgia Soil and Water Conservation Commission. Certification of on-site "Qualified Personnel" to ensure proper design, construction, and maintenance of standard E & S control measures and storm water management	Walker County	Enforced		

		practices				
Georgia Mountain and River Corridor Protection Act	State and local governments	Mountain and River Corridor Protection Act requires local governments to provide a 100-foot buffer on large rivers.				
Georgia Planning Act	State and local governments	Water supply watershed protection requirements including stream buffer requirements and SWAPs. The Georgia Planning Act calls for protection of streams that flow into reservoirs or are upstream from drinking water intakes.	State	Enforced	1989	
Local ordinances	Walker County	Ordinance to protect the water supply watersheds in county	County	Enforced		
Local ordinances	Walker County	Ordinance to protect the groundwater recharge areas of county	County	Enforced		
Construction Storm Water Discharge NPDES Permit	Georgia DNR/ EPD	General storm water permit for stand-alone construction sites; infrastructure projects; and common developments. Requires implementation of Erosion, Sedimentation and Pollution Control Plan plus monitoring of discharge for compliance with Georgia's in-stream water quality standards.	State	Enforced		
Industrial Storm Water Discharge NPDES Permit	Georgia DNR/ EPD	General storm water discharge permit for manufacturing facilities; mining, oil, and gas operations; hazardous waste treatment; storage or disposal	State	Enforced		

		facilities; recycling centers; steam electric power generating facilities; transportation facilities; domestic sewage or sewage treatment. Requires implementation of Storm Water Pollution Prevention Program. May require storm water monitoring program targeting discharges into/near 303 (d) listed waters.				
Phase II NPDES Storm Water Permit for Small MS4	Georgia DNR & EPD, Walker County	Requires local jurisdictions to develop a comprehensive Storm Water Management Program (SWMP) to include 1. Public Education and Outreach; 2. Public Participation and Involvement; 3. Illicit Discharge Detection and Elimination; 4. Construction Site Storm Water Runoff Control; 5. Post-Construction Storm Water Management in New Development and Redevelopment; 6. Pollution Prevention and Good Housekeeping related to municipal operations, reporting, monitoring and program implementation.	Walker County	Enforced	Resubmitting NOI, waiting approval from EPD.	
Watershed Assessment and Protection Plan	Walker County	Limited Voluntary Assessment of Rock Creek watershed	Walker County			
Lula Lake Land Trust	Land Trust	Land conservation activities, biological monitoring and	Private	ongoing	Est. 1994	

		research, education and programming, and land protection initiatives in Rock Creek watershed. Protects over 4,000 acres				
Mapping of outfalls	CVRDC	GPS mapping of outfalls where stormwater enters creeks	Walker County			
Georgia Best Management Practices (Agriculture)	Georgia DNR/EPD	Informs those involved in the agriculture business of effective practices to minimize non-point sources of pollution	Georgia			
Farm Bill 2002 Forestland Enhancement Program	Georgia Forestry Commission	The Forestry Commission has implemented best management practices on its lands to reduce sedimentation and erosion from silviculture practices. The Georgia Forestry Commission also provides education, technical and financial assistance through cost-share programs to private landowners especially in the Forestland Enhancement Program, a part of the 2002 Farm Bill.	Federal, State		Ongoing	
Federal Farm Bill 2002	United States Department of Agriculture/ Natural Resources Conservation Service	Enhances long-term quality of our environment and conservation of our natural resources. This bill provides several opportunities for receiving grants to improve water quality.	Federal Cost-Share and Incentive Programs		Ongoing	
Quality Growth Grant Program Slope	Walker County	Part of greenspace planning, protecting steep slopes from erosion with stricter	DCA		TBA	

Protection		enforcement of SES and stormwater regulations				
Quality Growth Grant Program Hillside BMP's	Walker County	Part of greenspace planning, limit inappropriate grading and hillside development	DCA		TBA	
Quality Growth Grant Program and Phase II Stormwater – wetlands protection	Walker County	Vegetative buffers along waterways. Encourage wetland protection/enhancements	DCA		TBA	
Quality Growth Grant Program Education for community leaders, businesses, organizations, citizens, schools, etc.	Walker County	TVA, DCA and the Southeast Watershed Forum developed educational program that builds on the "Non-point Education for Local Officials Program. Educational packages to be presented to groups in county. Packages tailored to audiences.	EPA, TVA, NRCS		TBA	
Quality Growth Grant Program Development Regulations	Walker County	Including regulations for conservation subdivisions, minimum lot sizes, tree preservation ordinance for new development, tree replacement ordinance for new development, rewriting of PUD regulations so PUD districts are used to create livable, pedestrian oriented village centers with low environmental impact (i.e. shared septic fields, etc.), and requiring conventional Greenfield subdivision developments over 10 units to be on sewer vs septic.	DCA		TBA	
Transportation	Ga DOT	Purchase easements along	DCA		TBA	

Enhancement Program	National Park Service	abandoned rail beds – provide connectivity to existing trails				
Walker County Comprehensive Plan - update	Walker County CVRDC	To be used as a reference in evaluating the appropriateness of future development proposals, county will then assess local development controls to ensure that they support the plan				
Rules and regulations for onsite wastewater management (Septic system permitting)	Walker County Department of Environmental Health	Regulates through permits and inspections of on-site sewage management systems	Walker County	Enforced	Ongoing	
Sanitary Sewer Maintenance Program	Walker County	Sanitary Sewer system inventory and inspection (mapping, television inspections); infiltration and inflow identification and reduction (flow monitoring, smoke testing); sewer line rehabilitation (pipe bursting, relining, cleaning) and manhole rehabilitation.	Walker County	Enforced	Ongoing	
PL-566	Georgia DNR/EPD, Limestone Valley RC&D, NRCS		Federal, State	Cost-share	Renewed yearly; since 2003	Very
Conservation Reserve Program (CRP)	Natural Resources Conservation Services	Conservation cost-share for conversion of highly erodible croplands to vegetative cover	USDA	Cost-share	Ongoing	Varies
Continuous	Natural	Encourages farmers to	USDA	Cost-share	Ongoing	

Conservation Reserve Program	Resources Conservation Services	convert highly erodable acreage to filter strips and riparian buffers to improve water quality and habitat 3500 acres have been preserved in Walker County under this program				
Acquisition and Preservation of Riparian Buffers	Walker County Greenspace committee	Committee will buy land			Ongoing	Very
Watershed Protection Tools Addressing Poor Riparian Buffers	Walker County and stakeholders	Riparian Buffer Ordinance (Stream Buffer Protection Ordinance); Stream Restoration; Stream Mitigation Bank; Conservation Subdivision Ordinance				
Watershed Protection Tools Addressing Point Sources	Walker County and stakeholders	Improved NPDES permits; Enforcement of existing permits				

VII. MONITORING PLAN

The purposes of monitoring are to obtain more data, to determine the sources of pollution, to describe baseline conditions, and to evaluate the effects of management and activities on water quality. Describe any sampling activities or other surveys - active, planned or proposed - and their intended purpose. Reference the development and submission of a Sample Quality and Assurance Plan (SQAP) if monitoring for delisting purposes.

Table 6. MONITORING PLAN

PARAMETER(S) TO BE MONITORED	ORGANIZATION	STATUS (CURRENT, PROPOSED, PLANNED)	TIME FRAME		PURPOSE (If for delisting, date of SQAP submission)
			START	END	
Fecal coliform	TVA	current	2003	2006	As part of business plan

VIII. PLANNED OUTREACH FOR IMPLEMENTATION

List and describe outreach activities which will be conducted to support this plan and the implementation of it.

Table 7. PLANNED OUTREACH

RESPONSIBILTY	DESCRIPTION	AUDIENCE	DATE
CVRDC	Look at data that may be available through TVA	Stakeholder Advisory Group	March 2006
CVRDC	Consider applying for 319H grant for septic education	Stakeholder Advisory Group	March 2006
CVRDC	Determine if “Jill at Ringgold High School is still working with the Ecology Club “EcoRescue”. Might their activities tie in with public education goals	Stakeholder Advisory Group	April 2006
CVRDC	Recommend buffer ordinances that are proactive	Stakeholder Advisory Group	March 2006
CVRDC	Recommend septic system education for homeowners above and beyond Health Department’s efforts.	Stakeholder Advisory Group	March 2006
CVRDC	Recommend convening Phase II Stormwater Administrators from multiple counties to discuss progress on NOI and stormwater planning issues	Stakeholder Advisory Group	April 2006

IX. MILESTONES/ MEASURES OF PROGRESS OF BMPs AND OUTREACH

This table will be used to **track and report progress of management measures including BMPs and outreach**. Record milestone dates for:
- accomplishment of management practices or activities - outreach activities
- installation of BMPs

to attain water quality standards. Comment on the effectiveness of the management measure, how much support the measure was given by the community, what was learned, how the measure might be improved in the future, and any other observations made. This table can be "pulled out" of this template and used to report and track progress.

Table 8. MILESTONES

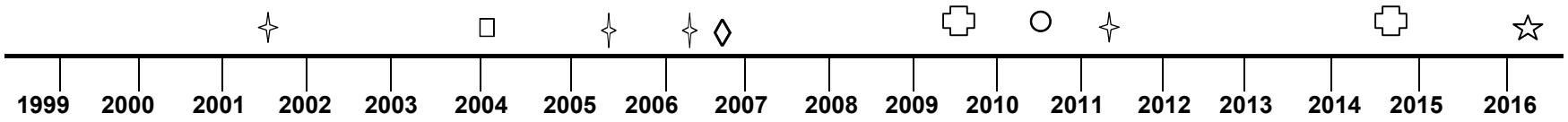
MANAGEMENT MEASURE	RESPONSIBLE ORGANIZATIONS	STATUS PROPOSED	STATUS INSTALLED	COMMENT
Stormwater Management Education and Outreach				
• Complete Center for Watershed Protection's Codes and Ordinances Worksheet	Local Governments	Summer 2006		
• Consider Adopting 22 Model Development Principles as discussed in Better Site Design: A Handbook for Changing Development Rules in Your Community where applicable	Local Governments	2007-2008		
• Implement education of community using After the Storm non-point source pollution video presentation on public access channels	Local Governments	Ongoing		
• Develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff	Local Governments	2006-2008		

from municipal operations				
• Reconvene Stormwater Working Group to include all counties, municipalities in Coosa Valley RDC area	Coosa Valley RDC, stakeholders	2006		
• Will investigate 319 h non-point source pollution grant possibilities regarding funding for development of stormwater management training for municipal employees	Coosa Valley RDC, stakeholders	2006		Application deadline May 31, 2006. Yearly deadline.
Septic System Maintenance Education and Outreach				
• Investigate expansion of district-wide outreach component to homeowners to include those with existing systems	Coosa Valley RDC, stakeholders	2006		
• Will investigate 319 h non-point source pollution grant possibilities regarding septic system maintenance and repair project	Coosa Valley RDC, stakeholders	2006		Application deadline May 31, 2006. Yearly deadline.
Riparian Buffer Education and Outreach				
• Consider adopting relevant principles as detailed in 22 Model Development Principles as discussed in Better Site Design: A Handbook for Changing Development Rules in Your Community	Local Governments	2007-2008		
• Continue education and outreach to local communities through USDA NRCS/FSA, County Extension Service	USDA NRCS/FSA, County Extension Service	Ongoing		
• Will investigate 319 h non-point source pollution grant possibilities regarding purchasing and distribution of education materials encouraging homeowners to	Coosa Valley RDC, stakeholders	2006		Application deadline May 31, 2006. Yearly deadline.

develop, maintain riparian buffers				
Investigate Funding Sources • Will investigate 319 grant possibilities regarding development of a project to survey schools in Coosa Valley RDC service area to determine interest in and feasibility of water quality education, specifically on causes of non-point source pollution, importance of riparian buffers, and stormwater pollution prevention	Coosa Valley RDC, stakeholders	2006		Application deadline May 31, 2006. Yearly deadline.

PROJECTED ATTAINMENT DATE

The projected date to attain and maintain water quality standards in this watershed is 10 years from acceptance of the TMDL Implementation Plan by Georgia EPD.



Scheduled EPD Basin Group Monitoring ✧
TMDL Completed □
Revised TMDL Implementation Plan Accepted ◊
Plan Status Evaluation Report ✠
Plan Update or Revision, if Necessary ○
Project Attainment for Plans Prepared in 2006 ☆

Prepared By:	**Jill Joss**				
Agency:	**Coosa Valley Regional Development Center**				
Address:	**P.O. Box 1793**				
City:	**Rome**	**ST:**	**GA**	**ZIP:**	**30165**
E-mail:	**jjoss@cvrdc.org**				
Date Submitted to EPD: 04/22/06				**Revision: 01**	

APPENDIX A

STAKEHOLDERS

List the names, addresses, telephone numbers, and e-mail addresses for local governments, agricultural or commercial forestry organizations, significant landholders, businesses and industries, and local organizations including environmental groups and individuals with a major interest in this watershed.

NAME/ORGANIZATION	ADDRESS	CITY	GA	ZIP CODE	PHONE	E-MAIL
Kelia Kimbell Walker County Planning Director	101 Napier St. Ste. B	Lafayette	GA	30729	(706) 638-4048	klkimbell@aol.com
Kathy Ward Walker County Planning	101 Napier St. Ste. B	Lafayette	GA	30729	(706) 638-4048	
Norman Edwards Walker County Extension Agent	P.O. Box 827	Lafayette	GA	30728	(706) 638-2548	nedwards@uga.edu
Cindy Askew NRCS	208 N. Duke St.	Lafayette	GA	30728	(706) 638-2207 ext.3	cindyaskew@ga.usda
Brandon Whitley Walker Co. Water & Sewer Authority –Plant Supervisor	P.O. Box 248	Flintstone	GA	30725	(423) 421-2942	wcwsaww@nexband.com
Don Oliver Walker County Attorney	P.O. Box 445	Lafayette	GA	30728	(706) 638-1437	
Doug Cabe Limestone Valley RC&D	125 RedBud Rd. Suite 7	Calhoun	GA	30701		dec@lvrcd.org
David Ashburn Mgr. Walker County Water & Sewer	P.O. Box 445	Lafayette	GA	30728	(706) 638-1437	
Mrs Dee Collins Parker	64 Iriswood Rd.	Flintstone	GA	30725	(706) 820-9622	deecolpar@aol.com

Chattanooga Valley Residents Association						
Keith Gilmer Ga. Soil & Water Conservation Commission	700 E. 2nd Ave. Suite J	Rome	GA	30161		
Jimmy Pinion – Walker County Environmental Health					(706) 639-2574	
Henry Blakemore?	2380 Burnt Mill Rd.	Flintstone	GA	30725		

APPENDIX B.

UPDATES TO THIS PLAN

Describe any updates made to this plan. Include the date, section or table updated, and a summary of what was changed and why.

APPENDIX C.

MAPS AND PHOTOS

CHATTANOOGA CREEK WATERSHED
HUC 10 #0602000111

- Chattanooga Creek – High Point to Flintstone
- Chattanooga Creek – Flintstone to stateline
- Dry Creek
- McFarland Branch

Chattanooga Creek – High Point to Flintstone
DSC00024 – Highway 193 near Nickajack Road. Pasture is the predominant land use in this area.

Chattanooga Creek – High Point to Flintstone
DSC00025 Residences still primarily rely on septic systems. New sewer is slated to be installed in this part of the watershed by the Walker County Water and Sewer Authority.

Dry Creek – Headwaters to Chattanooga Creek at stateline
DSC00069 Dead end of Wilson Rd. at the far northern end of the watershed is horse pasture. The creek flows directly beside the pasture just beyond the trees.

Dry Creek – Headwaters to Chattanooga Creek at stateline
DSC00072 Horse farm and pasture just east of Rossville.

Dry Creek – Headwaters to Chattanooga Creek at stateline
DSC00074 This sewer location is within 100 ft. of the creek

Dry Creek – Headwaters to Chattanooga Creek at stateline
DSC00075 The source of this milky water is undetermined. This photo was taken from the road bridge at the far southern end of the City of Rossville.

Dry Creek – Headwaters to Chattanooga Creek at stateline
DSC00076 This is the more urbanized southeastern segment of the watershed near Fairview. Note the urban influence of trash and debris.

Dry Creek – Headwaters to Chattanooga Creek at stateline
DSC00080 Agriculture still plays a role in this largely urbanized watershed.

McFarland Branch
DSC00072 Along Williams St. in the City of Rossville. The creek flows behind industrial use buildings, several small bridges or footpaths over it. Urban runoff largely a factor.

McFarland Branch
DSC00074

McFarland Branch
DSC00075 Same location as photo page 46. This sewer line runs along the east side of Williams St. directly beside the creek. Note the manhole cover beneath the vegetation.